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EXAMINER	
WOZNIAK, JAMES S	
ART UNIT	**PAPER NUMBER**
2655	

DATE MAILED: 02/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/828,400	POULSEN ET AL.	
	Examiner	Art Unit	
	James S. Wozniak	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Appeal Brief

1. In response to the appeal brief filed on 9/12/2005, the examiner has withdrawn the final rejection from the office action mailed on 6/13/2005 due to the new grounds of rejection over Mizuno et al *(U.S. Patent: 5,732,392)*.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1-4, 6, 9, 12-13, and 15-17** are rejected under 35 U.S.C. 102(b) as being anticipated by Mizuno et al *(U.S. Patent: 5,732,392)*.

With respect to **Claims 1 and 12**, Mizuno discloses:

Accumulating samples of the composite signal to provide a series of frames each containing a plurality of signal samples *(speech parameter frames, Col. 4, Lines 5-30; Col. 8, Lines 39-41; and A/D conversion, Fig. 2, Element 12)*;

Transforming each frame to provide transform products in each frame *(fast Fourier transform (FFT) for obtaining spectral parameters, Col. 4, Line 47- Col. 5, Line 65)*;

Analyzing each frame to determine the number of transform products in each frame having an amplitude above a threshold *(counting the number of speech spectrum peaks above a threshold within a frame, Col. 4, Lines 5-30; Col. 6, Lines 4-21)*; and

For each frame comparing that number to a validation range to determine if the frame contains the signal component *(range for speech detection, Col. 6, Lines 22-60)*.

With respect to **Claims 2 and 13**, Mizuno discloses:

Determining if the signal component is present in the composite signal based on the contents of a series of the individual frames *(speech detection processing performed on many frames, Col. 6, Lines 4-21; Col. 8, Lines 39-41)*.

With respect to **Claims 3 and 16**, Mizuno recites:

Detecting the presence of a predetermined characteristic in the composite signal before the operation of determining the presence of the signal component can be performed *(determining the presence of a vowel or quantization distortion characteristics prior to speech detection, Col. 2, Line 58- Col. 3, Line 12)*.

With respect to **Claim 4**, Mizuno teaches the FFT for obtaining spectral parameters, as applied to claim 1.

With respect to **Claims 6 and 15**, Mizuno teaches:

Transforming each frame is performed by a windowed transforming *(performing an FFT on an analysis window, Col. 6, Lines 22-49)*.

With respect to **Claims 9 and 17**, Mizuno discloses:

The signal component is voice in a composite signal containing voice and non-voice components *(noisy speech, Col. 7, Lines 9-35)*.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 11 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno et al *(U.S. Patent: 5,732,392)* in view of La Marche et al *(U.S. Patent: 4,028,496)*.

With respect to **Claims 11 and 19**, Mizuno teaches the method and system for speech detection utilizing FFT transform products, as applied to Claims 1 and 12. Although Mizuno teaches detecting a characteristic of an input signal prior to performing speech detection as applied to claim 3, Mizuno does not teach detecting a characteristic prior to performing speech detection that is used in echo detection. La Marche, however, teaches detecting an onset of a speech signal prior to speech detection that is utilized in echo detection *(Col. 2, Lines 53-56; Col. 7, Line 63- Col. 8, Line 10)*.

Mizuno and La Marche are analogous art because they are from a similar field of endeavor in speech detection. Thus, it would have been obvious to a person of

ordinary skill in the art, at the time of invention, to modify the teachings of Mizuno with the means for onset and echo detection as taught by La Marche in order to enable weak speech detection and reduce false speech detector operation due to echoes *(La Marche, Col. 2, Lines 53-56; Col. 7, Line 63- Col. 8, Line 10)*.

6. **Claims 5, 14, and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno et al *(U.S. Patent: 5,732,392)* in view of Horner et al (U.S. Patent: 5,365,592).

With respect to **Claims 5 and 14**, Mizuno et al teaches the method and system for speech detection utilizing FFT transform products, as applied to Claims 1 and 12. Mizuno does not teach overlapping speech frames in conjunction with transforming, however Horner teaches performing a frame overlapping in conjunction with FFT processing *(Col. 3, Lines 41-60)*.

Mizuno and Horner are analogous art because they are from a similar field of endeavor in speech detection. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Mizuno with the frame overlapping process taught by Horner in order to enable more voicing decisions while maintaining frame length *(Horner, Col. 3, Lines 41-60)*.

Claim 20 contains subject matter similar to claim 1, and thus, is rejected for the same reasons. Also, although Mizuno does not specifically suggest method implementation as a program stored on a computer readable medium, Horner teaches

storing a speech detection method in a DSP to provide a practical means for implementing a speech detecting method in a hardware device *(Col. 6, Lines 42-68)*.

7. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno et al *(U.S. Patent: 5,732,392)* in view of Mekata *(U.S. Patent: 5,479,560)*.

With respect to **Claim 7**, Mizuno et al teaches the method and system for speech detection utilizing FFT transform products, as applied to Claim 1. Mizuno does not specifically suggest determining if a number of transform products exceeds a computed spectral average within a validation range, however Mekata teaches updating a threshold with an average spectrum energy for speech signal detection *(Col. 11, Lines 16-22)*.

Mizuno and Mekata are analogous art because they are from a similar field of endeavor in speech signal detection. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Mizuno with the threshold updating means taught by Mekata in order to obtain properly processed speech in accordance with varying noise levels *(Mekata, Col. 7, Lines 60-64)*.

8. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno et al *(U.S. Patent: 5,732,392)* in view of Nakatoh et al *(U.S. Patent: 5,611,019)*.

With respect to **Claim 8**, Mizuno et al teaches the method and system for speech detection utilizing FFT transform products, as applied to Claim 1. Mizuno does not specifically suggest counting a specific frame number to detect the presence of speech,

however Nakatoh teaches such a counting means *(Col. 7, Lines 42-64; Col. 15, Lines 3-23)*.

Mizuno and Nakatoh are analogous art because they are from a similar field of endeavor in speech detection. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Mizuno with the frame counting means taught by Nakatoh in order to provide a method for performing speech detection and preventing an erroneous decision in the presence of noise *(Nakatoh, Col. 9, Lines 52-57)*.

9. **Claims 10 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno et al *(U.S. Patent: 5,732,392)* in view of Hamilton *(U.S. Patent: 5,450,484)*.

With respect to **Claims 10 and 18**, Mizuno et al teaches the method and system for speech detection utilizing FFT transform products, as applied to Claims 1 and 12. Mizuno does not specifically suggest a composite signal containing voice and network tone components, however, Hamilton teaches such a composite signal and associated processing means *(Col. 7, Lines 3-19)*.

Mizuno and Hamilton are analogous art because they are from a similar field of endeavor in speech detection. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Mizuno with the signal containing speech and network tones and associated processing means

taught by Hamilton in order to add the ability to avoid detection of telephone network signals as speech *(Hamilton, Col. 7, Lines 3-19)*.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Chow et al *(U.S. Patent: 5,596,680)*- teaches a method for detecting speech by counting positive zero crossings in a frame.

Ehara *(U.S. Patent: 6,334,105)*- teaches a method for speech detection that compares a spectral amplitude to a threshold.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James S. Wozniak
1/30/2006

WAYNE YOUNG
SUPERVISORY PATENT EXAMINER